METEOROLOGICAL COMMITTEE.

One Hundred and Thirty-Eighth Meeting.

Gwydyr House,
Whitehall,
30th July, 1930.

Present:-

Mr. F. Montague, M.P. (In the Chair).
Under Secretary of State for Air.

The Director	Mr. Meadowcroft.
The Hydrographer.	Sir Thomas Middleton.
Captain Ellery.	Professor Sampson.
Sir Henry McAnally.	Mr. D. Brunt (Secretary).

1159. The chair was taken by Professor Sampson pending the arrival of the Under Secretary of State.

The minutes of the last meeting held on the 12th March, 1930, previously circulated in typescript, were confirmed, with the following amendment of minute 1150. In that minute the words "and the Department of Agriculture for Scotland" should be added after "Ministry of Agriculture and Fisheries" in the penultimate line.

Sir Thomas Middleton proposed and Dr Simpson seconded , a vote of congratulation to Sir Henry McAnally upon the honour of knighthood bestowed upon him by His Majesty the King. Both proposer and seconder emphasised the assistance which Sir Henry had at all times given both to the Committee and to the Office generally. The proposal was cordially adopted by the Committee.

1160. Edinburgh Meteorological Committee.

The minutes of the meeting held on the 17th June, 1930, were laid on the table.

In connection with these minutes the question was raised as to the possibility of printing in the Daily Weather Report a table or scale of conversion from millibars to inches.

1161. Annual Report 1929-30.

The Annual Report which had previously been circulated in galley proof was adopted.

The Committee considered that the names of Director, Assistant Directors and Superintendents, together with names of Divisions should be inserted after the lists of Committees at the beginning of the Report. The addition should be made this year if that could be done without much resetting of the type and in any case next year.

1162. The Investigation of Visibility.

It was agreed that the Committee to supervise the research on Visibility should be formed in the first place of representatives of the War Office and the Air Ministry and that the Committee so formed should recommend what other Departments of State should be asked to nominate representatives.

(File 960436/29. Previous minutes 1139, 1151).

1163. Retirement of Captain Forbes, Marine Agent at Southampton.

The Director laid before the Committee a statement of the services rendered to the Meteorological Office by Captain Forbes, over a period of 32 years. After some discussion the Committee recommended that an Honorarium of £50 should be paid to him, in view of his long and valuable services, if this payment could be sanctioned.

(File 36523/30).

1164. Retirement of Mr. W.Grant, observer at **Stornoway**.

The Director laid before the Committee a statement of the services rendered by Mr. W. Grant as observer at Stornoway since 1907.

The Committee recommended that a letter should be sent to Mr. Grant expressing the Department's appreciation of his work.

(File 43530/30).

1165. International Commission for the Polar Year 1932-3. Meeting in Leningrad 1930.

The Director outlined the progress already made in connection with the organisation of the Polar Year, and stated that the International Commission would meet in Leningrad during the coming summer. The Committee approved of the Director's attendance at the meeting of the Commission in Leningrad.

METEOROLOGICAL COMMITTEE.

One Hundred and Thirty-Ninth Meeting.

Gwydyr House,
Whitehall.

12th November, 1930.

Present:

Mr. F.Montague, M.P. Under Secretary of State for Air.	(In the Chair).
The Director	Sir Henry McAnally.
The Hydrographer	Sir Thomas Middleton.
Colonel Bond.	Mr. Rose.
Captain Ellery.	Professor Sampson.
Mr. Knight.	Sir Arthur Schuster.
Sir Henry Lyons.	Mr. D.Brunt (Secretary).

1166. The minutes of the last meeting, held on 30th July, 1930, previously circulated in typescrift, were confirmed.

The Chairman extended a welcome on behalf of the Committee, to Mr. C.N.Knight, who has succeeded Mr. Meadowcroft, as a representative of the Air Ministry. (File 66452/30).

The Director reported that the question of the inclusion of a table or scale of conversion from millibars to inches in the Daily Weather Report, raised in Minute 1160, had been met by the inclusion of a scale of converion.

The Director also reported that the Treasury had refused to sanction the payment to Captain Forbes of an honorarium, on his retirement, as recommended in Minute 1163.

1167. Draft Estimates for the Year 1931-2.

The draft estimates for the year 1931-2 had been circulated for the information of the Committee. The Director explained the main changes from the preceding year's estimates.

(a) Additions to the Staff of the Navy Services Division - £500. The increase is necessitated by the work involved in the training of Naval Officers in Meteorology and the added cost of £500 will be recovered from the Admiralty. (File 953198/29).

(b) Civilianisation of the Meteorological Service in Iraq - £1000. In a full year this will cost £5000-£6000. The proposed change, which is being urged by the R.A.F., has not yet been put up to the Treasury. (File 955855/29).

(c) Distributive Station at Manchester - £1,200. The provision of a Meteorological Station at Manchester is part of a big scheme on international lines and has not yet received Treasury approval. (File 918366/29).

(d) Full Distributive Station at Mount Batten. £600. This proposal, which has been approved by the Treasury, arises from the decision to post a seaplane unit to Mount Batten. (File 35120/30).

(e) Additional clerks at Biggin Hill and Lympne. £500. Additional clerks are required in order to carry on a 24-hour service in view of the increase of night-flying.

(f) Wireless messages from Rugby. - £5,300. A sum of between £3000 and £4000 is inserted to meet the cost of broadcasting two daily messages to America, in connection with the International Scheme adopted by the International Meteorological Conference at Copenhagen, in 1929, and reported to the Meteorological Committee at the meeting of 13th November, 1929 (Minute 1142). (File 969701/29).

The balance of the sum estimated is to meet the cost of transmitting weather messages for shipping from Rugby instead of from the Air Ministry station, as it is proposed to dismantle the apparatus by which the Air Ministry has issued this message. (File 42298/30).

The Director pointed out that this was the first time that the cost of wireless weather messages had been included in the estimates of the Meteorological Office.

The estimates were approved by the Committee.

1168. Formation of an Inter-Departmental Committee on Visibility.

The Director reported that the Committee on Visibility had been formed, and that the following representatives had been nominated to serve on it.

Air Ministry Representatives :-

Dr.G.C.Simpson, C.B., F.R.S. Chairman.
Mr.H.E.Wimperis, C.B.,M.A.,F.R.Ae.S, M.I.E.E.
Dr.F.J.W.Whipple, M.A.,F.Inst.P.
Mr.D.Brunt, M.A. Secretary.
Mr.H.E.Green.

War Office Representatives :-

Colonel H.L.Bingay, D.S.O.
Professor A.M.Tyndall, D.Sc. F.Inst.P.
The Chief Superintendent, Chemical Warfare Research Department (or his representative).

The Committee will meet at an early date, and will then consider what other Departments of State should be asked to nominate representatives.

(Previous Minute 1162. File 31177/30).

1169. Loss of the Airship R.101.

The Director referred to the loss which the Office had sustained through the death of Mr. Giblett. In connection with the enquiry he explained that Sir John Simon had placed on record his view that everything possible had been done both on the ground, and in the airship, to place at the disposal of the airship all available meteorological information. The Director added that the future of the Airship Division of the office cannot be decided until the decision of general policy on conclusion of the present enquiry into the loss of R.101.

1170. International Meetings during 1930.

(i) International Union of Geodesy and Geophysics.

The Director reported that he had attended the meetings of the International Union in Stockholm, August, 1930.

(ii) Commission for the Polar Year.

The Director reported that he had attended the meetings of the Commission for the Polar Year in Leningrad, September, 1930. He added that there was not much progress to report beyond that laid before the Meteorological Committee at the last meeting. (Minute 1165). The Treasury has not yet agreed to the financial provision which is necessary. The Director further laid before the Committee a proposal to send Mr.J.M.Stagg, to Sodankylä in Finland, for a month to obtain experience of magnetic and other observations in high latitudes. Such experience would be valuable even if the Polar Year Scheme were not carried out. The Committee agreed to the Treasury being approached to relieve Mr. Stagg from his normal work so that he may devote his time to preparation for the Polar Year and go to Sodankylä. (File 63094/30).

1171. Edinburgh Meteorological Committee.

The minutes of the meeting held on 28th October, 1930, were laid on the table.

1172. Additional Clerk for work in connection with the Crop Weather Scheme.

The Director reported that the Treasury had sanctioned the additional clerk required to enable the office to undertake the work of computation involved in the Crop Weather Scheme. (Minute 1150.

1173. Dates of Meeting during 1931.

The following dates were adopted.

January 14th.
March 11th.
May 13th.
July 8th.
September 9th.
November 11th.

The meetings fixed for January, May and September will only be held if circumstances require these meetings.

1174. Retirement of Sir Henry McAnally.

Attention was drawn to the fact that this was the last meeting of the Meteorological Committee which Sir Henry McAnally would attend in view of his retirement from the Air Ministry. The members of the Committee expressed their appreciation of the services which Sir Henry had rendered to the Committee and to the meteorological office.

METEOROLOGICAL COMMITTEE.

One Hundred and Fortieth Meeting.

GWYDYR HOUSE,
WHITEHALL.

11th March, 1931.

Present:

Sir Henry Lyons. (In the Chair.)
The Director.
The Hydrographer.
Captain Ellery.
Mr. Knight.
Sir Thomas Middleton.
Mr. Rose.
Professor Sampson.
Mr. Webster.

Mr. D. Brunt (Secretary).

175. The minutes of the last meeting, held on 12th November, 1930, previously circulated in typescript, were confirmed.

Apologies for absence were received from the Under Secretary of State for Air, Sir Arthur Schuster, and Colonel Bond.

The Chairman extended a welcome on behalf of the Committee to Mr. J.A.Webster, who has succeeded Sir Henry McAnally as a representative of the Air Ministry.

76. Replacement of Service (R.A.F.) Meteorologists by Civilians in Iraq.

The Director reported that the Treasury had sanctioned the civilianisation of the Meteorological service in Iraq on condition that there was a corresponding saving in service personnel. This will add a sum of £5,000 to £5,700 to the meteorological estimates in a full year. The civilianisation will commence towards the end of the present calendar year, and a sum of £1,000 has been allowed in the estimates for 1931-32 to meet this. [See Minute 1167(b). File 955855/29].

7. New Distributive Station at Catterick.

The Director reported that Treasury sanction had been granted for the establishment of a new distributive station at Catterick, Yorkshire, to provide for meteorological requirements in connection with long flights to Scotland and Northern Ireland. (File 35136/30).

1178. Increase of Staff of Marine Division and Navy Services Division.

The Director reported that the Treasury had sanctioned an increase of staff of the Marine Division by one Grade II Clerk, and one Grade III Clerk, to meet the increase in work largely brought about by the obligations imposed by the decisions of the Convention for the Safety of Life at Sea. (File 56034/30).

The Treasury had also sanctioned an increase of the Staff of the Navy Services Division by one Senior Professional Assistant, and one Grade III Clerk to meet the additional duties imposed by the training of Naval Officers, which the Office had undertaken at the request of the Admiralty. The Admiralty had undertaken to contribute £500 per annum to meet the cost of the additional work involved by this training. (File 953198/29).

1179. International Commission on Explosive Waves, Madrid, March, 1931. Attendance of Dr. Whipple.

The Committee agreed that it was desirable that Dr. Whipple should attend the meeting of this Commission. (File 14699/30).

1180. International Climatology Commission, Masbruck, September 1931.

The Committee agreed that a representative should be sent to the International Climatology Commission, if a suitable representative should be available. (File 955703/30).

1181. International Conference on High Tension Systems in Paris. June 1931. Attendance of Director.

The Committee agreed that the Director should attend the International Conference on High Tension Systems, if he could spare the time to attend. (File 83773/31).

1182. **Polar Year.**

The Director gave an account of a visit he had paid to the Treasury and said that he anticipated that sanction would be given, under conditions, which would make it possible for Great Britain to take its fair share in the undertaking. (File 970764/29).

183. **Proposed Meteorological and Magnetic Work on H.M.S. Challenger.**

The Director reported the receipt of a letter from the Hydrographer relative to the surveying and hydrographic work to be done by H.M.S. Challenger during a period of about 5 years, commencing about September of this year, in the area between Greenland and the White Sea and North of the parallel of latitude 60°. After some discussion the Committee agreed that it was highly desirable that a whole time professional Meteorologist should be borne in the Challenger. The Director suggested that the post might be held against that of Senior Professional Assistant at present allowed as personal assistant to the Director (File 75143/30).

184. **Proposal to send a Professional Assistant to Ismailia for one year.**

The Director referred to the erection of a special mast at Ismailia in April to October 1928 for the purpose of obtaining records of the distribution of temperature with height near the Airship mooring mast. On account of the inadequate supervision which is all that is possible at present, the records hitherto obtained have been of little or no value.

The observations on such a mast would be of value not only to airships, but also to the Chemical Defence Department as well as to theoretical meteorology, and the Director therefore proposed to send a specially trained professional assistant out for one year to look after the temperature installation, unhampered by any routine duties. The Committee agreed that it was highly desirable that full advantage should be taken of the existing organisation before it was dismantled. (File 20409/30).

1185. Reprint of Form 1111 - Instructions to Rainfall Observers.

The question of distribution of this pamphlet was raised because a number of copies, of value 3d. each, were supplied annually to Negretti and Zambra free of charge for distribution to purchasers of raingauges. Messrs Negretti and Zambra also supply to the Office a list of purchasers of raingauges, so that letters may be sent asking them to supply their readings to the office. In this way the Office obtains a number of new rainfall observers each year.

Mr. Webster suggested that the same end might be reached at a less cost if instead of Negretti and Zambra giving a copy of the pamphlet they gave a sheet asking each purchaser to communicate with the Meteorological Office if he was willing to supply copies of his observations. The Director replied that he doubted whether that would be cheaper in the long run, for if a purchaser offered to co-operate it would be necessary to send to him a copy of the pamphlet, which would involve correspondence and the cost of postage; in any case the saving would be small and would not justify running the risk of losing the helpful co-operation of the instrument makers.

The Committee recommended that no charge should be made in the present system of distribution. (File 892517/28).

1186. Visibility Committee.

The Director reported that the Visibility Committee as first constituted (see Minute 1168), had held its first meeting on 15th December 1930, and had recommended that the Admiralty and the Department of Scientific and Industrial Research should be asked to nominate representatives. The two departments had now nominated their representatives. (File 31177/30).

METEOROLOGICAL COMMITTEE.

One Hundred and Forty first Meeting.

GWYDYR HOUSE,
WHITEHALL, S.W.1.
8th July, 1931.

Present:-

Mr. F. Montague M.P. (In the Chair).
Under Secretary of State for Air.

The Director.	Sir Thomas Middleton.
The Hydrographer.	Mr. Rose.
Captain Ellery.	Professor Sampson.
Mr. Knight.	Mr. Webster.

Mr. D. Brunt (Secretary).

1187. The minutes of the last meeting held on the 11th March, 1931, previously circulated in typescript, were confirmed, with the correction in the heading of minute 1180 of Innsbruck for Masbruck.

The Secretary reported the receipt of letters regretting inability to attend the meeting, from Sir Arthur Schuster, Sir Henry Lyons, and Colonel Bond.

1188. Annual Report.

The Annual Report, which had previously been circulated in galley proof, was adopted with some minor verbal corrections. The Committee desired that certain re-arrangements should be made in the order of the report; in particular that the paragraphs relating to Staff should follow the paragraphs relating to the work of the Committees at the beginning of the report; that the work of the Marine Division and the Navy Services Division should be discussed under the common heading of Ocean Meteorology; and that the paragraphs relating to publications should be placed after those on International Cooperation.

1189. **Preparation of Marine Meteorological Charts and Manual of Meteorology for Seamen.**

The Director laid before the Committee a letter received by the Board of Trade from the Honourable Company of Master Mariners in which it was urged that Marine Meteorological Charts on a uniform scale for all oceans should now be constructed and made available to the Merchant Navy, and that a manual on Marine Meteorology for Seamen should be prepared.

The Director reported that the preparation of a manual of Meteorology for Seamen was in hand. With regard to the question of constructing charts, he stated that the staff of the Marine Division was fully occupied by the work of collecting information, and that there was no time available for collating the information in the form of charts. He explained to the Committee the nature of the information collected in Ships' logs, and added that the observations in some of the earliest logs, dating back 80 years, were among the most valuable of all. The total work involved in the preparation of monthly charts for all oceans would amount to about 31 man-years, and would cost about £8,000. The Director further pointed out that the steady increase in the cost of the meteorological service made it difficult, in the present economic conditions, to ask the Treasury for a special grant of £8,000 for the purpose of preparing these charts.

The Hydrographer recalled the publication in 1928 of quarterly charts of the ocean prepared in the Marine Division and published by the Admiralty. The Director explained that these charts had been mainly copied from charts published by the U.S.A. and that it would be possible to prepare much better charts than these if all the information available in the Marine Division could be extracted.

The Director added that marine observations had been punched on Hollerith cards only since 1921, and that only 10% of the observations had been punched on cards last year so that it would be necessary to postpone the preparation of the charts for a very long period if they were to be based on the Hollerith cards now accumulating.

The Committee finally agreed that a reply should be sent to the Board of Trade pointing out the difficulty, on grounds of economy, of asking for a special grant to meet the cost of the extraction of data from the accumulated logs for the preparation of charts, also drawing attention to the quarterly charts of the ocean published by the Admiralty in 1928, and further stating that the Meteorological Committee proposed to conduct a thorough examination of the whole question to see whether by any re-organisation of the work of the Marine Division it would be possible to start upon the work of preparation.

The Committee appointed a Sub-committee consisting of the Director, the Hydrographer, Captain Ellery, and Mr. Knight, to examine the possiblities of re-organising the work of the Marine Division in such a manner as to permit of a start being made upon the work of preparation of marine meteorological charts (File 100401/31).

1190. Polar Year.

The Director reported that the Treasury had sanctioned provisionally a grant of £10,000 spread over 3 years, on condition that adequate support was given by other countries.

A letter from the Royal Society expressing its willingness to cooperate in the organisation and direction of the programme for the Polar Year was circulated to members of the Committee. In this letter a request was made that a portion of the Air Ministry grant-in-aid, say £2,000, should be made immediately available, in order to facilitate early preparation.

The Committee was sympathetic with the request of the Royal Society, but decided that the matter was one for the Finance Branch of the Air Ministry.

91. International Conferences.

The Director reported that the following international conferences would meet during 1931.

1. International Climatology Commission, Innsbruck, September 1931
2. International Commission for Terrestrial Magnetism and Atmospheric Electricity, Innsbruck, September 1931.
3. International Commission for the Polar Year, Innsbruck, September 1931.
4. Extraordinary Meeting of the International Meteorological Committee, Locarno, October 1931.
5. Meeting of Executive Council of the International Meteorological Committee, Locarno, October 1931.

The Director proposed, and the Committee agreed, that Major Goldie should attend the first three of these Meetings, at Innsbruck in September, and that he should himself attend the remaining two, at Locarno in October.

192. Edinburgh Meteorological Committee.

The minutes of the meeting of the Edinburgh Meteorological Committee, held on 16th June, 1931, were laid on the table.

93. Director's Report.

1. Meteorological Work at Ismailia. (Previous Minute 1184).

The Director reported that the Treasury had agreed that a Professional Assistant should be sent out to Ismailia for one year, to obtain observations from the temperature recording installation on the specially erected mast.

2. Meteorological and Magnetic work on H.M.S. Challenger. (Previous Minute 1185).

The Director reported that after consultation with the Hydrographer it had been decided to leave this question in abeyance until the beginning of next year.

3. Conference on Cyclones in the Caribbean Sea. (Previous Minutes 1124, 1156).

The Director reported that the proposed conference had been postponed sine die.

METEOROLOGICAL COMMITTEE.

One hundred and Forty-second Meeting.

Gwydyr House,
Whitehall, S.W.1.

11th November, 1931.

Present:

Sir Philip Sassoon. (In the chair).
Under Secretary of State for Air.

Mr. Lempfert (for the Director).	Sir Thomas Middleton.
Captain Ellery.	Mr. Rose.
Mr. Knight.	Professor Sampson.
Sir Henry Lyons.	Mr. Webster.

Mr. D. Brunt. (Secretary).

1194. The minutes of the last meeting held on 8th July, 1931, previously circulated in typescript, were confirmed.

Letters regretting inability to attend were received from Sir Arthur Schuster, the Hydrographer, and Colonel E. L. Bond. The Chairman explained that the Director had left for Egypt, on duty, and was therefore unable to attend.

The Chairman reported that the Royal Society had awarded the Copley Medal to Sir Arthur Schuster for his distinguished work in Optics and Magnetism. The Committee desired that a letter should be sent to Sir Arthur congratulating him on this award.

1195. Draft Estimates for 1932.

Mr. Lempfert explained the chief differences between the estimates for 1932 and those for the current year.

(a) The civilianisation of the Meteorological Service in Iraq, for which full provision is now made for the first time, accounts for an increase of £3,750.

(b) The item for Research is increased from £2,000 to £5,000. Of this sum, £4,000 is provided in connection with the Polar Year, the cost of other items of research to be restricted to £1,000.

(c) No provision is made for Airship Meteorology, except for one Professional Assistant at Ismailia to complete work on the temperature recorder. This represents a net saving of £4,000.

(d) The sum allocated for instruments is reduced by £2,000, but against this must be set a reduction of £1,000 from the sale of instruments.

(e) A reduction of £1,500 is made in the provision for works and maintenance.

(f) A reduction of £1,000 is to be effected in the cost of telephones, telegrams, and payments to observers.

The net total cost of the whole service is estimated at £146,000, the same sum as last year.

1196. Report of Carpenter Committee on Scientific Staffs.

Mr. Lempfert reported that before the financial crisis arose proposals had been made for the application of the Carpenter Committee's scheme to the staff of the Meteorological Office, but that further consideration of the application had been deferred until the financial situation had become less acute.

1197. Publications.

Mr. Lempfert reported that manuscripts of papers for publication as Geophysical Memoir and Professional Note, and the manuscript of the Réseau Mondiale for 1925 had been returned by the Stationery Office, accompanied by letters requesting that the postponement of publication be considered, in view of the present financial stringency. He added that similar action would probably be taken with regard to the Observatories Year Book.

After some discussion the Committee agreed that a Sub-Committee should be appointed to formulate a policy with regard to publications, to report at the next meeting of the Committee. In view of the time which would elapse before this could happen, it was agreed that the Sub-Committee's findings should be discussed with the Stationery Office without waiting for their submission to the Meteorological Committee. The following were appointed members of the Sub-Committee:-

The Director.
Sir Henry Lyons.
Sir Thomas Middleton.
Mr. Webster.

1198. Closing down of Cardington Meteorological Station.

Mr. Lempfert reported that it had been decided to close down the meteorological station at Cardington at an early date, the staff thus released being absorbed elsewhere. He further stated that the report on the investigation of wind structure was now in proof stage, and that most of the work planned after the disaster to R.101 had now been completed.

1199. Marine Meteorological Charts.

Mr. Lempfert reported that the Sub-Committee appointed to consider the possibility of preparing Marine Meteorological Charts had met once, and had scrutinised some of the data in the Marine Division and the methods of handling these data. The sub-committee will prepare a programme of publications which it considers desirable, having regard to the cost of preparation and of printing. (See Minute 1189.)

1200. Polar Year.

Mr. Lempfert reported that the arrangements in connection with the Polar Year were well forward, and that

Mr. Stagg had visited Fort Rae last summer and was now making the necessary preparations to open the station at Fort Rae next year. The question of staff which he would take with him was being held over until the Director's return.

Sir Henry Lyons added that the financial difficulties had been met by the Council of the Royal Society advancing the sum of £250, which would be recovered from Polar Year funds when these became available. (See Minute 1190.)

1201. International Meetings during 1931.

Mr. Lempfert reported that the arrangements laid down in Minute 1191 had been carried out, and that in addition he had himself attended a meeting of the Upper Air Commission at Madrid earlier in the year. The meetings at Locarno had been mainly concerned with administrative matters, including the general financial arrangements for the International Secretariat.

1202. Sub-Commission of the International Commission on Clouds.

Mr. Lempfert reported that a letter had been received from Professor Süring asking that Captain Douglas should attend a meeting of the Sub-Commission at Frankfurt or Cologne at the end of November. The Committee agreed that it was desirable that Captain Douglas should attend. (File 100103/31).

1203. Edinburgh Meteorological Committee.

The minutes of the meeting of the Edinburgh Meteorological Committee held on 3rd November, 1931, were laid on the table.

Professor Sampson explained the steps which the Edinburgh Committee had taken to ascertain the state of the existing observatory buildings on Ben Nevis, and to explore the possibility of re-opening the observatory. The

Edinburgh Committee had felt that it was undesirable to proceed further without some definite decision as to the scientific value of observations on Ben Nevis, and had adopted the following resolution:-

"The Committee would recommend that the Meteorological Office should make a thorough and systematic enquiry as to the extent to which the re-establishment of an observatory on the summit of Ben Nevis would subserve the interest of weather forecasting and/or be of value to meteorological science generally."

The Meteorological Committee decided that the Director be asked to report to them at their next meeting as to the desirability of their adopting this resolution. (File 87326/31).

1204. Dates of Meeting during 1932.

The following dates were adopted for meetings during 1932, it being understood that the meetings fixed for January, May, and September would not be held unless specially required.

January 13th.	July 13th.
March 9th.	September 14th.
May 11th.	November 9th.

METEOROLOGICAL COMMITTEE.

One hundred and forty-third meeting.

Gwydyr House,
Whitehall, S.W.1.

9th March, 1932.

Present.

Sir Henry Lyons.	(In the Chair)
The Director	Sir Thomas Middleton.
The Hydrographer	Mr. Rose.
Captain Ellery	Professor Sampson.
Mr. Knight	Mr. Webster.
Colonel Loughborough	Mr. D. Brunt (Secretary).

1205. The minutes of the last meeting, held on the 11th November, 1931, previously circulated in typescript, were confirmed.

The Chairman announced that the Under-Secretary of State for Air was unable to attend the meeting, and that Sir Arthur Schuster's health did not permit his attending.

A letter was read from Sir Arthur Schuster, thanking the Committee for their congratulations upon the award to him of the Copley medal of the Royal Society.

The Chairman extended a welcome to Colonel Loughborough, who succeeds Colonel Bond as representative of the War Office.

1206. Report of the Publications Sub-Committee (Min. 1197).

The Director laid before the Committee the report of the publications Sub-Committee which was elected at the preceding meeting. He referred to the very complete survey of the publications of the office carried out by an earlier Sub-Committee on Publications in 1922, and stated that in spite of the subsequent development of the work of the Meteorological Office, there had been no addition to the list of publications issued, except for upper air data, which were published by international agreement. The Director also stressed the fact that much of the research published as Geophysical Memoirs and Professional Notes is carried out in the private time of the staff, and that it was important that such research should not be discouraged. The Sub-Committee wished to press for the continued publication of these, and of the Réseau Mondial.

The report was accepted by the Committee, who agreed that a letter should be sent to the Stationery Office emphasising the points mentioned by the Director.

1207. The Publication of Marine Charts. Report of Sub-Committee (Min. 1199).

The Director laid before the Committee the report of the Sub-Committee on the publication of Marine Charts. The Sub-Committee had had under consideration the possibility of publishing five atlases of charts, one each for the North Atlantic, South Atlantic, North Pacific, South Pacific, and Indian Oceans, but in view of the present financial situation it could not recommend that such a scheme be proceeded with. The Sub-Committee made the following recommendations.

(a) that the number of log-keeping ships should be reduced to 50; (the present sanctioned number is 101).

(b) that the Marine Observer should be published quarterly with a monthly supplement;

(c) that reports from coast stations should be reduced;

(d) that the clerks thus set free should be employed on the extraction of the old data; if possible a Hollerith Punching machine to be obtained for use in the Marine Division itself;

(e) that the position should be reviewed in two years' time.

It is anticipated that the reduction of work thus brought about will liberate two or three clerks, who can be employed in the extraction of data from the original logs. These data will be punched on Hollerith cards, and when this has been done, the data required for any particular purpose can be extracted with little or no expense.

The Director emphasised the need for making the data available, not only for meteorological research, but also for the preparation of handbooks, and reports on the meteorological conditions prevailing in different parts of the world.

The report of the Sub-Committee was adopted. (File 100401/31).

1208. Polar Year. Ben Nevis Observatory.

The Director reported that although the British National Committee for the Polar Year had not been completely formed, the plans for the British share in the scheme had been well advanced. This will consist in (a) the opening of the station at Fort Rae in Canada by a party under Mr. Stagg, who will leave England early in May; and (b) an investigation of ionisation of the upper atmosphere by a party under Professor Appleton, to be located at Trömsö in Norway. The cost of staff and instruments for the latter will be borne by the Department of Scientific and Industrial Research, only the cost of transport and subsistence being borne by the Polar Year Committee.

Ben Nevis Observatory (Min. 1203). The Director reported that the question of re-opening the Ben Nevis Observatory had been under consideration, and that the possible utility of observations on Ben Nevis to the forecaster had been discussed within the Meteorological Office, the general opinion being that the observations would not be of material assistance. Irrespective of this opinion however it had already been decided not to proceed with the re-opening of Ben Nevis Observatory in connection with the Polar Year on account of the large cost which would be involved. (File 95066/31).

1209. Preparation of Naval Handbooks on Local Meteorology.

The Director referred to a minute of the Fleet Meteorological Committee recommending that handbooks giving local meteorological information should be compiled for places and coasts visited by H.M.Ships, and reported that a request had been received from the Admiralty that the preparation of such handbooks should be commenced at an early date.

The Director pointed out that similar handbooks would be required by the Army and the Royal Air Force, and the question arose as to whether one series of books could not meet the requirements of all three services.

The Hydrographer stated that the Admiralty attaches considerable importance to the preparation of these books, the need for which will increase with the increase of the Naval Air Arm.

The Committee agreed that the work of preparation could only be carried out in the Meteorological Office. The Director stated that he intended to consult the Army and Royal Air Force before putting up a scheme for the Naval Handbooks.
(File 126478/31).

1210. Meeting of the Visibility Committee on 19th February.
Representation of the Physiology of Vision Committee.

The Director reported that, in accordance with their terms of reference (See Min. 1162) the Visibility Committee desired to add to their number a representative of the Physiology of Vision Committee. The Committee agreed.

1211. Meeting of the Edinburgh Committee on 29th February 1932.

The minutes of the Edinburgh Committee held on 29th February, 1932, were laid on the table. Professor Sampson referred to the enquiries regarding telephonic communication which are being made in connection with auroral observations at Lerwick during the Polar Year.

1212. Director's Report.

1. Reorganisation of the Forecasting and Aviation Services Divisions.

The Director outlined the charges in the organisation of forecasting work and the control of observing stations which had been made on December 1st, 1931. Up to that time the Forecast Division had been responsible for the issue of forecasts to newspapers and of all forecasts of general weather conditions, as well as for the control of telegraphic reporting stations, while the Aviation Services Division had been responsible for the issue of forecasts in connection with aviation, and for the control of distributive stations. This system had the disadvantages that two divisions issued forecasts on the same information, involving considerable duplication in the drawing of charts, and that the two divisions used different systems of plotting the information, and issued rather different kinds of forecasts. The staff of the two divisions were therefore not interchangeable.

Under the new arrangement all the forecasting except at outstations, will be made by M.O.2, the Forecast Division, while the Aviation Services Division will take over control of all observing stations, and will be responsible for all organisation for aviation. Advantage has been taken of the re-organisation of the work, to re-arrange the accommodation, there being now separate rooms for (a) the receipt of messages and typing of forecasts, (b) the actual work of forecasting and (c) the general clerical work.

The new arrangements are proceeding satisfactorily, and only minor adjustments are yet to be made.

2. Sub-Commission of the International Commission on Clouds at Frankfurt-am-Main.

The Director reported that Captain C.K.M. Douglas had attended the meeting of this Sub-Commission as previously arranged (Minute 1202).

3. Visit of the Director to Egypt and Palestine.

The Director reported that he had visited the Meteorological Stations in Egypt and Palestine, and had found that the work is being carried on in a thoroughly satisfactory manner.

4. Civilianisation of Meteorology in Iraq.

The Director reported that Mr. Batty had arrived in Iraq on December 2nd, 1931, and that he had taken charge of a portion of the meteorological work as from 1st January, 1932. The remaining posts will be filled by civilians as they fall vacant.

Gwydyr House,
Whitehall,

13th July, 1932.

METEOROLOGICAL COMMITTEE

One hundred and forty-fourth Meeting.

Present.

Sir Henry Lyons. (In the Chair).
The Director.
The Hydrographer.
Captain Ellery.
Mr. Knight.
Colonel Loughborough.
Mr. Rose.
Professor Sampson.
Mr. Webster.

Mr. D. Brunt (Secretary).

1213 The minutes of the last meeting held on the 9th March 1932, previously circulated in typescript, were confirmed.

The Chairman announced that the Under-Secretary of State for Air, and Sir Thomas Middleton were unable to attend on account of other engagements, and that Sir Arthur Schuster's health did not permit his attending.

1214 Annual Report.

The Annual Report, which had previously been circulated in galley proof, was adopted with some minor verbal corrections. The Chairman commented on the long list of scientific papers by members of the office staff at the end of the report.

1215 Edinburgh Meteorological Committee. Meeting held on 7th June 1932.

The Director referred to a paragraph in the minutes of the meeting, with reference to the question formulated by the Edinburgh Committee as to the probable value to Meteorological Science of a new series of observations from Ben Nevis. (See previous Minute 1203 of 11th November 1931). He had regarded the query as relating only to the programme for the Polar Year, and when the Polar Year Committee had decided that no funds were available for work on Ben Nevis, he had not regarded the further discussion of the possibility of re-opening the Observatory in Ben Nevis as of practical importance.

Professor Sampson pointed out that members of the Edinburgh Committee had visited Ben Nevis and had come to the conclusion that while the re-opening of the observatory for one year was not a practical proposition, on account of the cost, the re-opening for a longer period might be practicable, provided the observations obtained were of meteorological value. He thought that the value to meteorological science of such a series of observations was still an open question. If it were decided that the observations would be of value, it might be possible to find individual subscribers in Scotland who would provide the necessary financial assistance.

The Director added that it would not be possible to obtain financial assistance from Government for such a scheme, but that he would send a definite answer to the questions they had raised to the Edinburgh Meteorological Committee. (File 95066/31).

Mr. Rose asked whether arrangements had yet been made for the supply of a daily weather chart to the "Scotsman". The Director explained that there were difficulties in supplying the chart by the required time each evening, but that these would be overcome in the near future.

1216 Preparation of Naval Handbooks on Local Meteorology.

Minutes of a conference which the Director had held with representatives of the three services were circulated to members of the Committee.

The Director pointed out that the preparation of the handbooks would be a serious undertaking which could only be carried out by staff who had no other duties. It will therefore be necessary to ask the Treasury to sanction an addition to the staff of the office for this purpose.

Mr. Webster enquired as to the urgency of the need for these handbooks, and the Hydrographer said that for the Navy they were urgently required.

It was finally agreed that the question should be taken up with the Treasury, but that in the first place the Admiralty and War Office should be asked to state their views as to the urgency of the need for the handbooks. (Previous minute 1209 - File 126478/31).

1217 Attendance of members of the Office Staff at the British Association.

The Director explained that in general he did not favour sending members of the office staff to the British Association as part of their official duty, though the contrary view was taken in the Directorates of Scientific Research and Technical Development at the Air Ministry.

Two members of the office staff had asked to be permitted to attend the British Association at York this year as official duty.

(a) Mr. Bilham, Superintendent of the British Climatology Division had written for the B.A. Handbook a chapter dealing with the Climatology of York, and had been asked to open a discussion on this subject at the meeting. He had also been asked to take part in a discussion on "The Organisation required for the recording of Water Levels and River Flow in the British Isles".

(b) Mr. Bennett, who is in charge of the investigations of visibility, has asked to be allowed to go to the York meeting to read a paper on "The effect of the spectral transmission of the atmosphere upon visibility by artificial light". Information upon this subject is badly wanted, and discussion with other scientists would be valuable and

and of great assistance to Mr. Bennett in his work.

The Committee agreed that it was desirable that both these officers should attend, and the Director agreed to put the case to the Finance Department for sanction.

Polar Year.

The Director reported that the British party had arrived at Fort Rae on June 15th, having completed their journey more rapidly than had been anticipated. The party under Professor Appleton has left for "Trömsö" to carry out investigations of the conducting layers in the upper atmosphere.

1219 Printing of Daily Weather Report Correction Sheets.

Specimens of the Daily Weather Report, and of the Correction Sheets, and copies of minutes by the Superintendent of the Forecast Division and Colonel Gold, were circulated to the Committee.

The Director stated that the number of corrections to be made in the Daily Weather Report was very low. In August 1931, while the Daily Weather Report contained 100,000 entries, only 660 errors were found, many of them of a trifling nature. The publication of the correction sheets involved the compilation of the tables, their preparation for lithography, and subsequent distribution. Independently of these sheets, two complete sets of the Daily Weather Report, corrected by hand, are kept in the Forecast Division for use in connection with legal and other enquiries. The Director added that when information was required in connection with insurance or legal matters, a request was sent direct to the Meteorological Office, so that the discontinuance of the publication of the correction sheets would not affect these enquiries.

The Committee agreed that the publication of correction sheets should be discontinued, but that a note should be inserted in the Daily Weather Report to the effect that the correctness of individual entries in the report was not guaranteed, and that any corrections could be obtained on application to the Meteorological Office. (File 160562/32).

1220 Director's Report. Director's Visit to Valentia.

The Director reported that he had visited Valentia in June, and had found that the work of the observatory was proceeding satisfactorily, and that the buildings and instruments were in good condition.

GWYDYR HOUSE,
WHITEHALL,
9th November, 1932.

METEOROLOGICAL COMMITTEE.

ONE HUNDRED AND FORTY-FIFTH MEETING.

Present:

Sir Henry Lyons (In the Chair).
The Director
The Hydrographer
Professor Chapman
Captain Ellery
Colonel Loughborough
Sir Thomas Middleton
Mr. Rose
Professor Sampson
Mr. Webster
Mr. D. Brunt (Secretary).

1221 The minutes of the last meeting held on 13th July, 1932, were confirmed and signed.

The Chairman read a letter from the Royal Society announcing the retirement of Sir Arthur Schuster, and nominating Professor Sydney Chapman, F.R.S. to serve on the Committee in his place; he also read a letter from the Admiralty nominating Captain J.A. Edgell, O.B.E., R.N., as Admiralty representative on the Meteorological Committee, in lieu of Vice Admiral Douglas, whom he has succeeded as Hydrographer of the Navy. He extended a welcome to the new members on behalf of the Committee.

The Director referred to Sir Arthur Schuster's long association with the Meteorological Office, and with the Committee. He was appointed a member of the Meteorological Council in 1901, and has served on the Meteorological Committee since its first formation in 1905, being Vice Chairman from 1920 on to the present time. Sir Arthur founded a meteorological department in the University of Manchester in 1905. The first lecturer in this department was G.C. Simpson, the present Director of the Meteorological Office, and his successor in the department was J.E. Petavel (Sir Joseph Petavel), the present

Director of the National Physical Laboratory. In 1906 Sir Arthur founded a Readership in Meteorology, of the value of £350 a year for 3 years, which was held by E. Gold from 1907 to 1910, and by G.I. Taylor from 1912 to 1915. In 1910 Sir Arthur presented a Galitzin Seismograph to Eskdalemuir observatory. Sir Arthur had at all times taken the keenest interest in geophysical subjects, and had himself made valuable contributions to these subjects, particularly in Terrestrial Magnetism, and had developed the method known as the Periodogram for investigating hidden periodicities. His interest in the work of the Meteorological Committee is shown by the regularity with which he attended the meetings, until failing health made attendance impossible.

The Committee desired to record in their minutes their warm appreciation of the valuable services rendered by Sir Arthur Schuster during a period of over 30 years to Geophysical Science generally, to the Meteorological Office, and to the Meteorological Committee. They also desired that a letter should be sent to Sir Arthur expressing their appreciation of his many services.

The Director referred to the appointment of Professor Chapman as successor to Sir Arthur Schuster, and pointed out that Professor Chapman's investigations in Terrestrial Magnetism, Atmospheric Tides, the cause of Aurora, and ionisation and ozone in the high atmosphere were a continuation of Sir Arthur Schuster's work. As President of the Royal Meteorological Society he was closely in touch with recent developments of Meteorology, and the Director welcomed his appointment to the Committee.

The Director also referred to the many services rendered to the Meteorological Committee by Admiral Douglas, during his tenure of office as Hydrographer since October, 1924.

Admiral Douglas had been Director of the Admiralty Meteorological Service during the War. He devised the Douglas Sea and Swell Scale, which has been in international use since 1929. On the establishment of the Fleet Meteorological Committee in 1928 Admiral Douglas became its first Chairman. During his term as Hydrographer there has been a great development of Meteorology in the Navy.

The Committee desired that a letter should be sent to Admiral Douglas expressing their warm appreciation of his service both to the Meteorological Committee and to meteorological science.

The Director also welcomed the appointment to the Committee of Captain Edgell, who had until recently served as Assistant Hydrographer. He had had practical experience of the keeping of Meteorological Logs at sea.

1222 Appointment of Vice-Chairman in place of Sir Arthur Schuster.

The Director referred to Minute 838 of the 28th April, 1920, which lays down the rule that the Vice-Chairman of the Committee shall be selected from among the representatives of the Royal Society and the Royal Society of Edinburgh.

It was proposed by Professor Chapman, seconded by Professor Sampson, and agreed by the Committee, that Sir Henry Lyons should be elected Vice-Chairman.

SKETCH ESTIMATES FOR 1933.

(Air Ministry Estimates. Vote 9, Subheads A-H).

ote 9.	Service.	1933.	1932.
	Expenditure.		
	Salaries, Wages & Allowances:		
A.	Meteorological Office.	50,000	51,000
B.	Staff at Meteorological Stations.	63,500	62,500
C 1.	Fuel & Light.	500	500
2.	Transport.	4,250	4,000
D 1.	Instruments, Stores & Equipment.	9,000	9,000
2.	Research.	1,000	1,000
D D.	Polar Year Research.	4,000	4,000
E.	Minor New Works, Rent & Maintenance.	5,000	6,000
F.	Telegrams, telephones & Miscellaneous.	17,250	18,000
G.	Superannuation.	2,000	2,000
		£156,500	£158,000
	Appropriations-in-Aid.		
H 1.	Royal Society: Income from Funds	600	600
	Refund of Salaries (Polar Year)	2,100	
2.	Sale of Instruments.	3,500	3,500
3.	Superannuation.	100	100
4.	Inspection Fees, Supply of D.W. Reports, data, etc.	2,700	2,300
5.	Contribution from Navy and Army Votes.	6,500	6,500
		£15,500	£13,000
	Net Total.	£141,000	£145,000

The sketch estimates for 1933 had been previously circulated in typescript. The Director pointed out the chief differences between these estimates and those for the current year:-

9.A. Salaries of Headquarters Staff.

The reorganisation of the Forecast Service has made it possible to substitute two Grade III clerks for three Junior Professional Assistants in M.O.2. A Grade III clerk has also been transferred from M.O.6. to Croydon.

9.B. Salaries of Outstation Staff.

Full provision has been included for a distributive station on the Civil Aerodrome at Manchester which is to be opened in February or March 1933.

Provision is also made in the Sketch for putting on a permanent basis the station at Andover established on a temporary basis in January 1932. No new appointment of professional staff will be required as staff will become available when the Polar Year work is completed. Additional clerical staff will, however, be required.

D.O.S.D. has requested that a distributive station may be established at Pembroke Dock, which has now become a seaplane base, as soon as the financial situation permits. In the scheme worked out in 1924 which the Treasury have approved in general terms, it was agreed that distributive stations should be established at all seaplane bases. No specific provision has been included in this Sketch, but it is proposed to take the matter up with the Treasury with a view to obtaining sanction for opening a station after the return of the Polar Year staff.

The two sub-heads 9.A and 9.B, taken together, show no change; the savings due to the reorganisation at Headquarters and reduction of bonus almost exactly balance the increases at outstations allowing for the causes mentioned above.

9.C.2. Transport.

A large number of replacements of overseas staff are due and this sub-head has been increased by £250.

9.D.2. Research.

Expenditure on normal research is again to be restricted to £1,000: Polar Year research will cost £4,000 as in 1932.

No change.

9.E. Works and Maintenance.

A diminished programme of new works results in a saving of £1,000.

9.F. Telegrams and Payments to Observers etc.

Economy in cable messages owing to satisfactory exchange of W/T messages enables a further reduction of £750 under this sub-head to be made.

Reduction of Expenditure £1,500.

9.H. Appropriations-in-Aid.

The principal change is the recovery of £2,100 from the Royal Society of salaries paid to Staff lent for Polar Year work in 1932.

Increase = £2,500.

Net Decrease of Estimates - £4,000.

1224 Preparation of Naval Handbooks. (Previous Minute 1216).

The Director reported that in accordance with the decision of the Committee at its last meeting, the War Office had been asked to contribute to the cost of preparation of the Naval Handbooks, but had replied that it was considered that the preparation of these handbooks was not a matter of urgency to the Army, and so no part of the cost involved could be borne by Army votes. The Director had therefore decided to go ahead with the preparation of the handbook for the Mediterranean, using the existing staff of the office, leaving the consideration of the financial readjustments until the first handbook had been completed. (File 126478/31).

1225 Memorandum from the Meteorological Office, Professional Staff Association.

A letter from the Professional Staff Association was circulated to members of the Committee. Mr. Webster explained that the application of the Carpenter scales of salary had been checked by the financial crisis.

It was agreed that the letter be referred by the Director to the Air Ministry for their sympathetic consideration, and that the Secretary should inform the Professional Staff Association of this course of action.

1226 Edinburgh Meteorological Committee. Meeting held on 31st October, 1932.

The minutes of the meeting of the Edinburgh Committee held on 31st October, 1932, were laid on the table. Professor Sampson referred to the question of the value of an observatory on Ben Nevis, and said that the Edinburgh Committee now recognised that the meteorological value of such an observatory was still unproved, and that the establishment of an observatory must wait until conditions are more favourable. (Previous minute 1215).

1227 Polar Year.

The Director read some extracts from letters and reports received from Mr. J.M. Stagg, who is in charge of the British party at Fort Rae. It appears that all the instruments are in efficient order, and that the party is working well and happily. The Director undertook to circulate copies of Mr. Stagg's letters to the members of the Committee.

1228 International Radio-Telegraphic Conference, Madrid, September, 1932.

The Director reported that Colonel Gold had attended the Conference, which had considered many important features of weather telegraphy. In particular it had completely revised Article 31 of the Radiotelegraphic Convention which deals with the organisation of all radio weather messages.

1229 Dates of Meeting during 1933.

The following dates of meeting during 1933 were adopted.

January 11th
March 8th
May 10th
July 12th
September 13th
November 8th

Meetings will definitely be held in March, July and November, but the meetings arranged in January, May and September will only be held if special circumstances require them.

Gwydyr House,
Whitehall,
12th July, 1933.

Meteorological Committee.

One Hundred and Forty-sixth Meeting.

Present.

Sir Henry Lyons. (In the Chair)
The Director.
The Hydrographer.
Professor Chapman.
Captain Ellery.
Mr. Knight.
Colonel Loughborough.
Mr. Rose.
Professor Sampson.
Mr. Webster.
Mr. D. Brunt (Secretary).

1230. The minutes of the last meeting, held on 9th November, 1932, were confirmed and signed.

Apologies for absence were received from the Under-Secretary of State for Air, and from Sir Thomas Middleton.

The Secretary read letters received from Sir Arthur Schuster and Admiral Sir Henry Douglas in reply to the letters of appreciation of their services sent in accordance with the wish of the Committee. (Minute 1221).

1231 Edinburgh Meteorological Committee

The minutes of the meeting of the Edinburgh Meteorological Committee held on 20th June, 1933, were laid on the table.

1232. Annual Report.

The Annual Report, which had been previously circulated in galley proof, was adopted with some minor corrections.

1233. Polar Year. Progress at Fort Rae.

The Director described briefly the progress of the work at Fort Rae, and commented on the very large number of auroral phorographs which had been obtained; 4,700 pairs of auroral photographs had been secured, and it was estimated that 70 per cent of these were sufficiently good for measurement.

234. **Staff.**

(a) Increased scales for selected Professional Assistants.

On account of the delay in implementing the findings of the Carpenter Committee, authority had been sought and obtained to increase to £450 the maximum salary of 11 Senior Professional Assistants who had been at the maximum salary of their grade for at least 3 years. This did not in any way prejudice the application of the Carpenter scales at a later date.

(b) Reorganisation of the Clerical Staff.

Mr. Webster recalled that the present system of organisation and recruitment of the Clerical Staff, introduced in 1920, had never been reviewed. He explained that such a review was now being undertaken, and described briefly some points regarding the work of the Clerical Staff which would have to be taken into consideration in any re-organization.

1235. **Director's Report.**

(a) **International Meetings.**

1. Meeting of the Polar Year Commission held in Copenhagen, May 1933. The Director outlined the decisions arrived at by the Commission, whose meetings he had attended.

2. Executive Council of the International Meteorological Committee.

The Director reported that he had attended a meeting of the Executive Council at De Bilt in May 1933.

3. International Union for Geodesy and Geophysics, to be held in Lisborn, September, 1933.

The Director stated that he and Dr. Whipple would attend the meeting.

4. International Meteorological Committee, De Bilt, October 1933.

The Director stated that he would attend the meeting.

(b) Gassiot Committee.

The Director reported that the Gassiot Committee, to which he reports annually the work done at the Observations, had met on 10th July.

(c) New Distributive Station at Manchester.

The Director reported that the new station at Manchester had been opened.

(d) Meeting of the Gale Warning Board.

The Director outlined the history of the Gale Warning System, and described proposals approved by the Gale Warning Board at a meeting held on 7th June 1933, which would place the administrative work connected with the Gale Warning service under the control of the Board of Trade, the Meteorological Office acting as agents of the Board of Trade in the issue of warnings.

(e) Training of the Meteorological Section R.A.F. Reserve, at Cranwell, May 1933.

The Secretary reported that the training of the Meteorological Reserve had been organised this year with a view to giving officers and men an insight into life in the service, rather than to purely meteorological training, and that the results had been highly satisfactory.

(f) Temporary Meteorological Stations at Artillery Practice Camps.

The Secretary reported that in accordance with requests received from the War Office, temporary meteorological stations had been opened at the Artillery Practice Camps at Watchet and Redesdale, and at the Sound Ranging Camp at Transfynydd.

1236 **Centenary of the Royal Cornwall Polytechnic Society.**

The Director described the long association of the Royal Cornwall Polytechnic Society with the Meteorological Office, and laid before the Committee a draft of an address which he proposed the Committee should send to the Society on the occasion of its anniversary meeting. The Committee approved the address, and expressed the wish that it should be signed by the Under-Secretary of State on behalf of the Committee. (File 218830/32).

1237 **Times and Place of Meeting of the Committee.**

The Director referred to the fact that since July 1926, the meetings had been held at Gwydyr House, Whitehall, and that since November 1929, the times of meeting had been 4 p.m. He desired to know whether this was the most convenient arrangement for members of the Committee. It was decided that Gwydyr House was the most convenient place of meeting, but that 3 p.m. would be a more convenient time, and that if the Under-Secretary of State for Air approved future meetings should be held at 3 p.m.

AIR MINISTRY,
KINGSWAY, W.C.2.

8th November, 1933.

METEOROLOGICAL COMMITTEE

One Hundred and Forty-seventh Meeting.

Present.

Sir Henry Lyons (In the Chair).
The Director
The Hydrographer
Professor Chapman
Captain Ellery
Mr. Knight.
Mr. Rose.
Professor Sampson.
Mr. Webster.
Mr. D. Brunt (Secretary).

1238. The minutes of the last meeting, held on 12th July, 193 were confirmed and signed.

Apologies for absence were received from Sir Thomas Middleton and Colonel Loughborough.

1239. Estimates for 1934 - 5.

The sketch estimate for 1934, shown below, had been circulated previous to the meeting. There is a net increase of £4,500, made up of an increase in expenditure of £2,000 and a decrease in receipts of £2,500. The Director pointed out the chief differences between these estimates and those for the current year:-

9. A. and B. Salaries.

This item shows an increase of £5,500 of which about £1,600 is due to increments.

Provision is made for the recently sanctioned station at Pembroke Dock (£570), for an additional Professional Assistant in Iraq and for a new Grade II post at Heliopolis and another at Abbotsinch (Renfrew).

The R.A.F. are also pressing for new distributive stations at Andover, Manston, Mildenhall, Bircham Newton, Abingdon and Bicester, mainly in connection with cloud flying.

The cost of a full distributive station is approximately

£1,050 per annum, and the new demand, if met in full, would therefore involve an annual charge of £6,300. It is proposed to employ a reduced staff consisting of 1 S.P.A. and 1 Grade III clerk wherever possible, thereby reducing the cost per station to about £570. On the basis of 2 normal distributive stations and 4 stations with reduced staff, the annual cost of the new demands would therefore be £4,400.

Provisional arrangements have already been made for opening stations at Andover, Manston and Bircham Newton by the loan of staff from other stations. These will be put on a more permanent footing as the returning Polar Year staff become available for duty. The final arrangements for the complete scheme have not yet been approved, but a sum of £1,500 has been included in this Sketch Estimate to meet expenses arising in the coming year.

9.D.1. Instruments and Equipment.

A saving of £1,00 is shown under this subhead owing to reduced provision for new stocks and repair of instruments.

9.D.D. Polar Year Research .

This sum of £2,000 completes the payment of £10,000 spread over the years of 1932 - 34.

9.E. Works, Rents and Maintenance.

Provision is made for new offices at Upper Heyford (where the accommodation has been makeshift as the future of the station has been uncertain hitherto) and at Mildenhall. Minor works are also contemplated at the other new stations.

9.F. Telegrams and Subventions.

A saving of £700 has been put down under this subhead owing to over-estimating previously.

A. - in - A.

9.H.1. Royal Society.

Apart from the normal income from the funds, there remains to be recovered only 7 months' salary for Mr. Stagg, compared with the refund of £2,100 in 1935.

9.H.2. Sale of Instruments.

The estimated sale of instruments shews a reduction of £500.

METEOROLOGICAL OFFICE.
ESTIMATES (SKETCH) 1934.

VOTE 9 Subheads A-H.

VOTE 9	SERVICE.	1934.	1933.
	Expenditure.	£	£
A	Salaries & allowances Meteorological Office	50,500	50,000
B	Outstations & Observatories	68,500	63,500
C 1	Fuel & Light	400	500
2	Transport	4,000	4,200
D 1	Instruments, Stores & Equipment	8,000	9,000
2	Research	1,000	1,000
DD	Polar Year Research	2,000	4,000
E	Works, Rent & Maintenance	4,500	4,000
F	Telegrams & Subventions	16,800	17,500
G	Superannuation	1,300	1,300
		157,000	155,000

		1934.	1933.
	Appropriations-in-Aid.		
H 1	Royal Society (Income from Funds (Refund of Salaries (Polar Year)	560 240	600 2,100
2	Sale of Instruments	3,000	3,500
3	Superannuation	100	100
4	Inspection fees, D.W.R's, Supply of Data	2,700	2,700
5	Contributions from Navy and Army Votes	6,400	6,500
		£ 13,000	£ 15,500
	Net	£ 144,000	£ 139,000

1240. **Return of the Polar Year Party.**

The Director reported that the party sent out to Fort Rae had all returned, and that the stores had also been returned safely. He explained that the reduction of the observations would be carried out by Mr. J.M. Stagg, who would be seconded for one year longer, being paid out of the Polar Year funds. Mr. Stagg will work in Edinburgh, ~~where~~ there are special advantages for discussion of the results.

1241. **Staff Questions** (see minute 1234 (b))

Mr. Webster described some of the points which had arisen in the consideration of the re-organisation of the work of the clerical staff, and stated that it was not yet possible to put forward any final proposals.

1242. **Publication of Health Resort Report.**

The Director referred to some of the divergencies which occur in the methods adopted by different newspapers in the publication of reports from Health Resorts. The Committee agreed that an effort should be made to arrive at uniformity, possibly by means of a conference with representatives of the Health Resorts, the Press Association, the newspapers, and the Meteorological Office. In the first place the Director would consult the Press section of the Air Ministry. (File 281305/33).

1243. **Director's Report.**

(a) Letter from War Office re Practice Camps 1934.

The Director reported that a request had been received from the War Office for meteorologists at at four Artillery Practice Camps during the summer of 1934. Some difficulty would arise in meeting this request, on account of reduction in staff at Shoeburyness made two years ago at the request of the War Office, but every effort would be made to supply the need of the War Office.

(b) International Meetings.

The Director described the work of the International Meteorological Committee which had met at de Bilt in October, 1933. He referred to the continuation of the Polar Year Commission to deal with the reduction and publication of the results obtained during the Polar Year, to the adoption of the new Cloud Atlas; and to the scheme for daily charts of the whole of the Northern hemisphere. Colonel Gold had attended the meeting as Chairman of the Synoptic Commission. The Director also reported that he and Dr. Whipple had attended the meeting of the U. G. G. I. in Lisbon in September 1933.

(c) Letter from the Royal Cornwall Polytechnic Society.

The Director read a letter received from the Society in reply to the address sent by the Committee on the occasion of the Centenary of the Royal Cornwall Polytechnic Society. (File 218830/32).

44. Dates of Meetings for 1934.

The following dates were approved:-

January 10th
March 14th
May 9th
July 11th
September 12th
November 14th.

The Director reported that he had consulted U.S. of S. concerning times and place of meeting and that U.S. of S. would not in general be able to attend the meetings.

It was agreed that future meetings should be held at Gwydyr House, Whitehall, at 3 p.m.

GWYDYR HOUSE,
WHITEHALL.

25th July, 1934.

METEOROLOGICAL COMMITTEE.

One Hundred and Forty-eighth Meeting.

Present:

Sir Henry Lyons. (In the Chair).
The Director.
The Hydrographer.
Professor Chapman.
Captain Ellery.
Mr. Knight.
Colonel Loughborough.
Sir Thomas Middleton.
Mr. Rose.
Professor Sampson.
Mr. Webster.
Mr. D. Brunt. (Secretary).

1245. The minutes of the last meeting, held on 8th November, 1933, were confirmed and signed.

1246. **Staff:**

(a) Resignation of Mr. D. Brunt, Superintendent of the Army Services Division.

The Director reported that Mr. Brunt had been appointed Professor of Meteorology in the University of London, and had resigned his appointment on the staff of the Meteorological Office as from 30th September, 1934. The Director pointed out that Mr. Brunt had acted as Secretary of the Meteorological Committee for 15 years, and the Committee desired to place on record their appreciation of the work which Mr. Brunt had done as Secretary.

(b) Appointment of Mr. Brunt's successor.

The Director reported that the Promotions Board, which had considered the filling of the vacancy due to Mr. Brunt's resignation, had decided to recommend the promotion of Mr. H. W. L. Absalom, at present Assistant-Superintendent in the Forecast Division. The Director explained the grounds on which Mr. Absalom had been selected, and the Committee concurred in the selection.

(c) Resignation of Mr. M. G. Bennett.

The Director referred to the formation of the Inter-departmental Committee on Visibility in 1930 (see minutes 1139, 1151, and 1162), and the appointment of Mr. M. G. Bennett to take charge of the investigation of visibility. He reported that Mr. Bennett had resigned his appointment as from July 31st, 1934, to take up an appointment with the L. M. S. Railway. A meeting of the Visibility Committee will be held soon after the holidays, to consider the future of the work on Visibility.

(d) Office Staff.

Mr. Webster described briefly the re-organisation of the office staff, following the lines laid down in the report of the Carpenter Committee, and the introduction of a grade of observer to carry out the routine duties of observation at out-stations. The Director pointed out that a distinct change of policy was involved, the performance of the simpler scientific duties being no longer restricted to University trained men. It was anticipated that the re-organisation would require a number of years for its completion.

1247. Annual Report.

The Annual Report for 1933-4, which had been previously circulated in galley proof, was adopted.

1248. Preliminary Arrangements for an Empire Meteorological Conference to be held in 1935.

The Director reported that an International Meteorological Conference of Directors would be held in 1935 in Europe. Before the last meeting of the Conference, in

1929, a conference of Empire Meteorologists was held in London, and it was proposed to hold a similar conference in London in 1935, immediately before the meeting of the International Conference. So far only Canada and India have definitely accepted the invitation to be represented at the Conference, while Newfoundland has definitely declined the invitation. It is proposed, however, to proceed with the arrangements for holding the Conference in London in 1935.

1249. Edinburgh Meteorological Committee.

The minutes of the meetings of the Edinburgh Meteorological Committee held on 8th May 1934, and on 12th June 1934 had been previously circulated. The Director drew attention to the minutes of the first of these meetings, which discussed the research initiated by the Edinburgh Committee 5 years ago with the aid of a special grant. Some progress has been made with this research, and the continuance of assistance in computing is not required at the present stage.

1250. Gale Warning Service. Transfer to Board of Trade.

The Director reviewed the reasons for the transfer of the administration of the Gale Warning Service to the Board of Trade, and stated that the transfer would be made on 1st September, 1934. (see minute 1235d).

1251. The Publication of a Chronology of the British Isles prepared by Mr. C. E. Britton.

The Director explained that a Chronology of the British Isles from the earliest times up to 1450 had been prepared by Mr. Britton outside official hours. The Director pointed out the value of such a chronology, and the Committee agreed that it was desirable that it should be published as an official publication.

252. **National Central Library. Participation of M. O. Library.**

The Director outlined the scheme of the National Central Library, whereby books could be borrowed from any participating Library through the National Central Library. The Chairman stated that the Science Library has for some time been an outlier Library in this scheme, and had never found its participation a burden. The Committee agreed that the M. O. Library should participate in the scheme.

253. **The development of Meteorological Services for Aviation.**

(a) Royal Air Force.

The Director stated that the Treasury had sanctioned the establishment of meteorological stations at Andover and Abingdon (to provide meteorological advice to the Air Officer Commanding), at Bicester and Bircham Newton (for cloud flying) at Manston and Mildenhall (for night bombers), and at Pembroke Dock (for flying boats). He anticipated that the proposed further development of the Royal Air Force recently announced would lead to further demands on the Meteorological Office.

(b) Civil Aviation.

The Director reported that in connection with the development of internal air services, the Treasury had been informed that 8 main W/T and meteorological stations will be required during the four years 1934-1937. A new scheme for broadcasting meteorological data, forecasts and warnings from Cranwell will provide a practically continuous service, which will assist the R. A. F. as well as Civil Aviation.

254. **Director's Report.**

(a) The Director reported that he had attended a meeting of the Executive Council of the International

Meteorological Committee at Utrecht in May 1934, and that Colonel Gold had attended a meeting of the International Commission for Synoptic Weather Information, of which he is President, at Utrecht at the same time.

(b) Meeting of the International Upper Air Commission at Friedrichshafen in August 1934. The Committee agreed that Mr. Lempfert should attend this meeting.

(c) Training of the R. A. F. Reserve (Meteorological Section) at Cranwell in May 1934.

The Secretary reported that 4 officers and 22 N. C. O's and airmen had attended. The course had consisted partly of purely meteorological training, and partly of lectures on service regulations, customs, and duties. Provision was also made for squad drill and physical training.

(d) The Gassiot Committee.

The Director reported that the Gassiot Committee had met on the 19th July, 1934.

Gwydyr House,
Whitehall.

14th November, 1934.

METEOROLOGICAL COMMITTEE.

One hundred and Forty-ninth Meeting.

Present:-

Sir Henry Lyons	(In the Chair)
The Director	Mr. Rose.
The Hydrographer	Professor Sampson.
Mr. Knight.	Mr. Webster.
Lt. Col. Macrae.	
Mr. F. Entwistle.	(Secretary).

1255 The minutes of the last meeting, held on 25th July, 1934 were confirmed and signed.

Apologies for absence were received from Professor Chapman, Captain Ellery and Sir Thomas Middleton.

1256 **Estimates for 1935-6.**

The sketch estimates for 1935, shown below, were circulated. There is a net increase of £1,500 over the final estimates for 1934, made up of an increase in expenditure of £3,500 and an increase in receipts of £2,000. The Director indicated the chief differences between these estimates and those for the current year.

Salaries: 9.A and B.

The increase of £2,500 for salaries provides for normal increments on the present scales (£1,000) and increase of staff (£1,500), including one officer on special work in connection with the Polar Year whose salary will be recoverable from the Royal Society.

Instruments and Equipment: 9.D.1. and 9.H.2.

The provision of instruments and stores for re-sale, principally to the Admiralty, has been increased by £1,500: the increase is also shewn in the Appropriations-in-Aid.

Research.

The final payment completing £10,000 for Polar Year Research is being made in 1934 and the provision for normal research is being put back to the original annual figure of £2,000.

Works Services.

In addition to rents and normal maintenance of observations and outstations, new offices are contemplated at Cranwell and Upper Heyford.

Telegrams and Payments to Observers.

Additional reporting stations and Telegrams in connection with internal air-lines are estimated to cost £3,000 during 1935. Against this increase is set off a reduction of £800 owing to the transfer of the cost of gale warning Telegrams to the Board of Trade Vote.

Appropriations-in-Aid.

Royal Society.

A refund of salary for one officer to be seconded for further work on Polar Year Research is included.

Superannuation.

Mr. J.A. Rigby, the last annuitant under the Meteorological Office superannuation scheme, died on 2nd June, 1954 and no further provision for receipts under 9.H.3. will be necessary.

METEOROLOGICAL OFFICE.
ESTIMATES (SKETCH) 1935.

VOTE 9 Subheads A-H.

VOTE 9	SERVICE	1935.	1934.
	Expenditure.	£	£
A	Salaries & allowances Meteorological Office	50,500	50,000
B	Outstations & Observatories	71,500	69,500
C 1	Fuel & Light	400	400
2	Transport	3,800	3,500
D 1	Instruments, Stores & Equipment	10,000	8,500
2	Research	2,000	1,000
DD	Polar Year Research	-	2,000
E	Works, Rent & Maintenance	4,000	5,000
F	Telegrams & Subventions	18,300	16,800
G	Superannuation	1,000	1,300
	£	161,500	158,000
	Appropriations-in-Aid		
H 1	Royal Society (Income from Funds	560	560
	Royal Society (Refund of Salaries (Polar Year)	440	240
2	Sale of Instruments	5,000	3,500
3	Superannuation	-	100
4	Inspection fees, D.W.R.'s Supply of Data.	2,700	2,500
5	Contributions from Navy and Army Votes.	6,800	6,600
	£	15,500	£ 13,500
	Net	£ 146,000	£144,500

1257 **Proposal to replace millimetres by inches in Health Resort Reports (rainfall table) published by the Press.**

The Director pointed out that, following the introduction of absolute units in meteorology by Sir Napier Shaw in 1914, the inch as a unit of measurement of rainfall disappeared from all Meteorological Office publications, all rainfalls being expressed in millimetres. The British Rainfall Organisation, which was then an independent body, did not introduce millimetres at observing stations, but agreed to publish the rainfall tables in the annual volumes of "British Rainfall" in both millimetres and inches, the Meteorological Office making a monetary grant towards the cost of printing the additional column. Since 1926, however, the tables in this publication had given rainfalls in inches only.

It had become evident from numerous complaints received from members of the public that the use of the millimetre as a unit of rainfall measurement in the reports from Health Resorts supplied by the Meteorological Office and published in the Daily Press was not popular and that the replacement of millimetres by inches would be welcomed. The Director proposed, that, as from 1st January, 1935, the rainfall columns in these tables should be given in inches instead of millimetres. This change would not involve any change of practice within the Office itself.

The Committee agreed that the proposed change from millimetres to inches should be made.

1258 **Report on Meteorological Office Staff Reorganisation.**

Mr. Webster reported that proposals for the reorganisation of the Meteorological Office on the lines recommended by the Carpenter Committee were being examined by a special sub-Committee of the Air Ministry Departmental Whitley Council. He referred to certain defects in the existing organisation which it was hoped to remedy by the reorganisation scheme. The growth in the work of the Office in recent years, particularly in connection with aviation, had resulted in the main staff expansion taking place in the basic grades of senior professional assistant and grade III clerk. The prospects of promotion for both these classes, which were aggravated by age distribution, were consequently very poor. Further, there was a maldistribution of the work and functions of the different grades and there existed very little incentive to the clerical staff to take an interest in the wider work of the Office. One of the most important proposals in the scheme of reorganisation was the transfer of a certain proportion of the forecasting work to a new "Assistant I" class which would be composed of trained men of long service and experience who had been recruited initially by special examination, having reached an educational standard equivalent to that of an Intermediate Science Degree.

Mr. Webster stated that, in the course of examination of the proposals by the sub-committee, a difference of opinion had arisen between the Official Side and the Meteorological Office Professional Staff Association, the Staff Side contending that the preparation of forecasts can only be undertaken by university-trained men who are qualified to carry out fundamental research. The Staff Side had requested that this question should be examined by the Meteorological Committee.

A memorandum by Mr. Webster on the proposals for filling forecasting posts in the new Meteorological Office Reorganisation, a note by the Director on the proposed employment of Assistants on forecast duties and a memorandum which had been prepared by the Staff Side were laid before the Committee. The Director explained the two opposing points of view.

The Committee decided to appoint a sub-Committee to examine this question. It was agreed that the sub-Committee should consist of the three representatives of the Royal Societies:- the Chairman, Professor Chapman and Professor Sampson. Professor Sampson stated that, as he lived a long distance from London, it would not be convenient for him to serve on the sub-Committee but he undertook to communicate his views in writing. It was decided, therefore to ask Dr. G.M.B. Dobson, F.R.S. to fill the third place on the sub-Committee.

The Director mentioned that, as part of the Reorganisation Scheme, it was proposed to amalgamate the existing Divisions of the Office in pairs. There appeared to be no difficulty except in the proposed amalgamation of the Marine and Naval Divisions. In the absence of Captain Ellery it was decided not to discuss the matter at length, but it was agreed that the Director and Mr. Webster should meet the Hydrographer and Captain Ellery to talk over the proposition.

1259 Director's Report.

(a) Conference on revised form of decimal classification for libraries held at the Hague in September, 1934.

The Director recalled that the International Meteorological Conference at Copenhagen in 1929 had appointed a sub-commission, of which he was Chairman, to examine the question of the classification of meteorological literature. The International Institute of Bibliography at Brussels, which was concerned with the classification of literature generally, had evolved a system of decimal classification which would facilitate reference to any subject. In September a meeting was arranged at the Hague between representatives of the Institute and meteorologists, at which Dr. Brooks represented the Meteorological Office. As a result of this Conference, agreement regarding the incorporation of meteorological literature in the general system of classification was now practically complete.

(b) Third International Locust Conference, held in London in September 1934.

The Director reported that Dr. Brooks and Mr. Bilham had attended this conference as meteorological experts attached to the British Delegation. A resolution was passed by the Conference stressing the importance of meteorology to the investigation and requesting all countries affected by the locust plague to develop their meteorological services.

(c) Visit of Commander Garbett to the Mediterranean to attend Naval Conference at Malta.

The Director reported that, following Commander Garbett's visits to Naval Stations overseas between 1925 and 1931, the Admiralty had asked him to visit Malta again to attend a Conference to be convened by the Commander-in-Chief, Mediterranean. He (the Director) had arranged for the Superintendents at Malta and Heliopolis to be present and had also taken the opportunity to arrange for a representative of the Italian Meteorological Service to meet the Meteorological Office representatives for the purpose of discussing certain outstanding matters concerning the interchange of meteorological information between the British and Italian services.

(d) Arrangements for Conference of Empire Meteorologists, 1935.

The Director reported that acceptances to send representatives to the Conference had been received from the Governments of all Dominions and Colonies having meteorological services, with the exception of Australia and New Zealand. Steps were being taken to induce the Governments of these Dominions to send the Directors of their Meteorological Services. Certain Colonies which had not meteorological services were sending representatives of their Agricultural Services or, in certain cases, the Port or Harbour Master. The Conference would be held from August 12th to 21st and the Directors would afterwards attend the International Conference of Directors to be held in Warsaw from September 5th - 12th.

(e) Amalgamation of Forecast Division and Aviation Division.

The Director reported that the amalgamation of the Forecast and Aviation divisions under Mr. Corless, formerly Superintendent of the Forecast Division, was effected on 1st October. Mr. Corless was assisted by Mr. H.W.L. Absalom who had been promoted to the grade of Superintendent and Mr. Entwistle, formerly Superintendent of the Aviation Division, had taken Mr. Brunt's place as Superintendent of the Army Services Division.

(f) Introduction of observer grade in the Meteorological Office.

The Director reported that 30 of the new observer grade, recruited from R.A.F. ex-airmen, had already replaced Grade III clerks at outstations and that satisfactory reports on their work and progress had been received. It was proposed to recruit a further 20 observers in the immediate future.

1260 Dates of Meetings in 1935.

The Committee approved the following dates, meetings on the dates not underlined to be convened only if there were special business to transact.

January 9th
March 13th
May 8th

July 10th
September 11th
November 13th.

METEOROLOGICAL COMMITTEE.

Amendment to Minute 1257 (149th meeting).

Replace paragraph 2 by the following :-

It had become evident from complaints received from members of the public that the use of the millimetre as a unit of rainfall measurement in the reports from Health Resorts supplied by the Meteorological Office and published in the Daily Press was not popular and that the replacement of millimetres by inches would be welcomed. The Director proposed, that, as from 1st January, 1935, the rainfall columns in these tables should be given in inches instead of millimetres. This change would not involve any change of practice within the Office itself. He pointed out, however, that this would require a change to be made in the previous decision of the Committee that "observers at climatological stations are encouraged to use millimetres" (Minute 1039).

Additional Item for Agenda of 150th Meeting.

1264 (h) Meteorological Exhibit at Highland Agricultural Show, Aberdeen, June 18th to 21st, 1935.

(i) Letter from National Central Library.

Committee. The matter had been raised at the last meeting and it had been decided to appoint a Sub-Committee to investigate and report to the Committee (Minute 1258). It had been hoped that when the report of the Sub-Committee was received, it would have been possible to obtain the concurrence of the members of the Committee by correspondence and that the Report would then have gone forward to the Air Ministry. Unfortunately, in the Conclusions to the Report, the Sub-Committee had specified that, before being employed on independent forecasting duties, an Assistant should have acquired a "knowledge of physics and mathematics at least up to the standard required for a university pass degree". As Mr. Webster and the Director felt that this suggestion was impracticable for administrative reasons, they, as members of the Meteorological Committee, could not subscribe without qualification to the Report in its present form. The Chairman had, therefore, decided to call a special meeting of

Gwydyr House,
Whitehall,
S.W.1.

23rd January, 1935.

METEOROLOGICAL COMMITTEE.

Special Meeting held to consider report of Sub-Committee on the employment of Technical Assistants on Forecasting Duties in the new Meteorological Office reorganisation.

Present:-

Sir Henry Lyons (in the Chair)
The Director
Prof. Chapman
Capt. Ellery
Mr. Flood
Mr. Knight
Col. Macrae
Sir Thomas Middleton
Prof. Sampson
Mr. Webster

Mr. F. Entwistle (Secretary)

Mr. Lempfert also attended the meeting.

An apology for absence was received from Mr. Rose.

At the invitation of the Chairman, the Director reviewed the circumstances which had led up to the present position. He recalled that as a result of the report of the Carpenter Committee the Air Ministry had formulated proposals which necessitated a reorganisation of the work of the Meteorological Office. An important part of the reorganisation involved the transfer of a certain portion of the forecasting work, which had hitherto been performed exclusively by the professional staff, to the new Technical Assistant class. This proposal had met with strong opposition from the Institution of Professional Civil Servants and, in the course of negotiations on the Air Ministry Departmental Whitley Council, they had requested through their representative that the question should be referred to the Meteorological Committee. The matter had been raised at the last meeting and it had been decided to appoint a Sub-Committee to investigate and report to the Committee (Minute 1258). It had been hoped that when the report of the Sub-Committee was received, it would have been possible to obtain the concurrence of the members of the Committee by correspondence and that the Report would then have gone forward to the Air Ministry. Unfortunately, in the Conclusions to the Report, the Sub-Committee had specified that, before being employed on independent forecasting duties, an Assistant should have acquired a "knowledge of physics and mathematics at least up to the standard required for a university pass degree". As Mr. Webster and the Director felt that this suggestion was impracticable for administrative reasons, they, as members of the Meteorological Committee, could not subscribe without qualification to the Report in its present form. The Chairman had, therefore, decided to call a special meeting of the Committee to consider the matter.

In the course of the discussion which followed, Prof. Chapman, who had served on the Sub-Committee, pointed out that the greater part of the Report was divided into a number of paragraphs (a) to (p). These did not, necessarily, represent the views of the Sub-Committee; the latter were set out in the Conclusions. He emphasised that the requirement laid down was really a very low one and that, when the scheme was in full operation, there ought not to be any difficulty in attaining the standard specified. It was not intended that an assistant should actually take a degree; the reports from the university would indicate whether the necessary standard had been reached. At the same time the Sub-Committee could not but recognise that there might be some difficulty in the initial stages and he personally had not thought that the recommendation should be applied rigidly during the transition period. He agreed that some modification might be introduced to cover this period.

Both the Director and Mr. Webster emphasised that they were in general agreement with the report and the proposals for training. They were prepared to accept the latter. The real difficulty in accepting paragraph 1 of the Conclusions lay in the rigid specification of the standard to be attained. While little trouble was likely to be experienced when the scheme was in full operation, it would be impossible in the initial stages, when experienced men of about 40 years of age were being transferred from the present clerical class to the new Assistant class, to guarantee that their knowledge of physics and mathematics was up to the standard specified in every branch of these subjects. The proposals as they stood would be binding, if adopted and would, in effect, tie the Director's hands in putting the scheme into execution. This would create an undesirable position.

With regard to paragraph 2 of the Conclusions, Mr. Webster stated that he felt sure the Air Ministry would accept this without modification. As regards the eleven forecasting posts specified, he pointed out that this number, like the scheme as a whole, was capable of variation in the light of experience and this would be made quite clear to the Staff Side if it was not so already. In amplification of the Air Ministry proposals for research, the Director stated that hitherto every member of the staff had been borne against a definite post in the Office so that there were no posts allotted purely to research. He proposed, however, to submit to the Air Council and the Treasury a request for an increase in staff in practically each grade of approximately 10% so that men would be available for training and research purposes.

The Committee unanimously agreed that the difficulty in adopting the Report of the Sub-Committee in its present form could and should be met by a suitable modification of the terms in which the conclusions of the Sub-Committee were expressed. The modification agreed upon was expressed by the following Resolution which was formally adopted.

RESOLUTION.

The Meteorological Committee accepts the conclusions of the Sub-Committee as indicating the general lines which should be followed in training and appointing Technical Assistants in the Meteorological Office to undertake independent forecasting.

They consider, however, that it is undesirable to lay down rigidly any definite academic standard which must be attained by the Assistants before they are employed on independent forecasting. The Director of the Meteorological Office is responsible for all the activities of the Office and his right to decide which of his staff are capable of undertaking any branch of the work should not be restricted.

The Meteorological Committee realise that during the transition period a number of men will have to be trained whose scientific knowledge cannot be brought up to the standard of a university pass degree in the time available. They consider, however, that when Technical Assistants of the new type come to be trained that standard should be closely attained.

GWYDYR HOUSE,
WHITEHALL.

13th March, 1935.

METEOROLOGICAL COMMITTEE

ONE HUNDRED AND FIFTIETH MEETING.

PRESENT :-

Sir Henry Lyons (In the Chair).
The Director
Prof. Chapman.
Capt. Ellery.
The Hydrographer.
Mr. Knight.
Col. Macrae.
Sir Thomas Middleton.
Prof. Sampson.
Mr. Webster.
Mr. F. Entwistle. (Secretary)

The Chairman, on behalf of the Committee, congratulated the Hydrographer on his promotion to Rear-Admiral.

1261. The Director pointed out that Minute 1257 (149th meeting) contained no reference to a previous decision of the Committee regarding the units to be used in rainfall measurement. He proposed that paragraph 2 of minute 1257 should be replaced by the following paragraph:

'It had become evident from complaints received from members of the public that the use of the millimetre as a unit of rainfall measurement in the reports from Health Resorts supplied by the Meteorological Office and published in the Daily Press was not popular and that the replacement of millimetres by inches would be welcomed. The Director proposed that, as from 1st January, 1935, the rainfall columns in these tables should be given in inches instead of millimetres. This change would not involve any change of practice within the Office itself. He pointed out, however, that this would require a change to be made in the previous decision of the Committee that "observers at climatological stations are encouraged to use millimetres" (Minute 1039).'

The amendment was agreed to and the minutes of the 149th meeting, held on 14th November, 1934, confirmed and signed.

The minutes of the special meeting held on 23rd January 1935 were also confirmed and signed.

1262. Report on present position of Meteorological Office Staff Reorganisation.

Mr. Webster stated that as the objections raised by the Staff Side to the reorganisation proposals related ~~mainly~~ to safety of life in the air, the matter had been referred to the Air Council. The proposals had subsequently been laid before the Treasury and had received Treasury approval. They had been communicated to the Staff Side and it was hoped that the Air Ministry would be in a position at an early date to commence putting them into effect.

Mr. Webster recalled to the Committee that it had been the Director's intention, as soon as the main conversion was completed, to ask for additional staff to form a pool which would be used for research purposes and also, as required, to meet seasonal demands for increased staff in connection with R.A.F. Exercises and Army Practice Camps, and for training. This increase of staff had now been semi-officially approved by the Treasury and included practically an addition of 10% in each grade. The actual numbers proposed were

1 Senior Technical Officer.

5 Technical Officers some of whom might be on the advanced scale (inclusive of the three mentioned in the original memo. of the Official Side).

2 Assistants I

3 Assistants II

6 Assistants III

In addition, Observers and other junior grades might be recruited within certain limits as occasion required.

The Director emphasised that the proposed increase of staff was independent of any specific demands for new staff which might be required in connection with further developments in the work of the Office. He then made a brief report on the progress of the new Observers who had been recruited from ex-airmen. Of the 53 Observers II who had been recruited, only one had proved so inefficient that it was necessary to dispense with his services. Of the remaining 52, 38 were held against Observer II posts at distributive stations while 14 were being trained at stations where they were redundant to establishment. Further experience of the observers had shown that they were slow, as compared with Grade III clerks, in computing and tabulating work but their progress was otherwise satisfactory and their conduct and zeal left nothing to be desired. In reply to Prof. Sampson the Director stated that the average age of the observers on entering the Office was about 30 and, apart from the possibility of promotion to Observer grade I, they would remain, normally, in the observer class to the end of their career.

The Committee desired to place on record their appreciation of the excellent start which had been made in the reorganisation of the Office.

1263. Extension of Mr. Lempfert's service.

The Director reported that Mr. Lempfert, who would reach the normal retiring age of 60 on 7th October, 1935, had made a formal application to continue his service after that date. He recalled that when Mr. Lempfert joined the Office in 1902 as Assistant to the Director, he was the first scientific assistant to be appointed. He had been associated with various sides of the work of the Office as Superintendent of Statistics and Forecasting and, in 1919, became an Assistant Director. In this capacity his work had been mainly in connection with personnel and, with the changes which the reorganisation must entail in the future, the Director considered that Mr. Lempfert should continue his service. He asked the Committee to make a recommendation to that effect. The recommendation would be for one year in the first place.

The Chairman endorsed the Director's request. He recalled in particular Mr. Lempfert's work under high pressure during the war for which he had been awarded the C.B.E. Sir Thomas Middleton and Professor Chapman also spoke in support of the Director's recommendation.

The Committee strongly supported the proposal that Mr. Lempfert's service should continue for one year after 7th October, 1935.

1264. Developments in Fleet Meteorological Service.

The Hydrographer reminded the Committee that, although the Fleet Meteorological Service had been developing gradually during the last ten years, it was only recently that a satisfactory naval meteorological organisation had come into being. The Admiralty had now approved the establishment of meteorological offices under naval officers qualified in meteorology in the following classes of ships :-

(1) Fleet Flagships.

(2) Battle Cruiser Flagship.

(3) Aircraft Carriers.

(4) All cruisers carrying aircraft except when organised as units of Fleet cruiser squadrons.

(5) At least one ship in each Fleet cruiser squadron equipped with aircraft.

By the end of 1936 a complete meteorological organisation would be established in 24 ships.

In order to provide the officer personnel for meteorological duties, the Admiralty had decided to qualify nearly all instructor officers, and a number of naval observers, in meteorology. In aircraft carriers one instructor officer qualified in meteorology would be borne for full-time meteorological duties in addition to a naval observer qualified in meteorology for part-time meteorological duties. In the other ships mentioned the meteorological duties would be undertaken by the instructor officer. Officers qualifying in meteorology took a 12 weeks' course at the Meteorological Office and, after about two years at sea, a four weeks' refresher course. About 40 officers had so far qualified in meteorology. Their duties comprised the issue of forecasts for Fleet operations, Fleet Air Arm operations, gunnery, chemical defence etc., the transmission of weather reports to shore meteorological services, the keeping of a meteorological log and the investigation of special meteorological problems. Daily routine comprised the preparation of two or three weather charts, the measurement of upper winds by pilot balloon or shell burst and the measurement of upper air temperatures. In order to assist the meteorological officer in carrying out these duties he was supplied with instrumental equipment approximating as closely as possible to that supplied to Meteorological Office outstations.

In ships of the Royal Navy other than those indicated, the meteorological duties were carried out by the navigating officer who received a one-week course at the Meteorological Office in addition to the instruction in meteorology given at the Navigation School. Surveying officers also attended one-week courses at the Meteorological Office while selected officers attended a four weeks' course.

The meteorological work of the Fleet or Squadron as a whole was under the general supervision of the Master of the Fleet or Squadron Navigating Officer on each station and such officers attended a one week's course at the Meteorological Office prior to taking up such appointments in order to familiarise themselves with the details of meteorological organisation in the Fleet. In order to maintain close liaison between the Fleet on each station and the local shore meteorological service of the British Empire, the King's Harbour Master at each naval base had been made responsible for liaison duties with the local meteorological service. The institution of a course for King's Harbour Masters prior to appointment was under consideration.

The Hydrographer pointed out that the meteorological organisation which he had outlined was the result of developments during the last ten years. These developments had been carried out by the Naval Division of the Meteorological Office which was responsible, through the Hydrographer, for the co-ordination and supervision of the whole of the meteorological work of the Fleet, as well as for the training of officers in meteorology, and he wished to pay tribute to Commander Garbett, Superintendent of the Naval Division, for his part in building up the organisation. The Director associated himself with the Hydrographer's remarks.

The Committee noted with interest the developments which had taken place in the Fleet Meteorological Service.

1265. Director's Report.

(a) Development of Scheme of Broadcasting Weather Reports for Aviation.

The Director stated that the demand for meteorological information by pilots of private aircraft had led, in 1930, to the establishment of a wireless transmitting station at Heston for the broadcasting by radio-telephony of weather reports and forecasts at intervals throughout the day. The station was erected and the service maintained by the Automobile Association, the information being supplied by the Meteorological Office, but in 1933 it was taken over by the Air Ministry. As the result of a growing demand by the R.A.F. for more detailed meteorological information for cross-country flying and the increased requirements of civil aviation and private flying it had been decided to improve the broadcasting of weather reports and forecasts in plain language in order to give a more comprehensive service. It was proposed to take over a high power transmitting station in Central England, the microphone being in the Forecast Division of the Meteorological Office. Data messages would be broadcast at frequent intervals from about 7 a.m. to 9 p.m.; these would be based on the normal three-hourly reports sent by observing stations to the Office. Special arrangements had been made for the rapid collection of reports from 12 key stations in different parts of the country and these reports would be broadcast within 15 minutes of the hour of observation, reports from the remaining stations following. In addition to the data messages, forecasts would be issued at specified times and warnings of dangerous phenomena as required. It would be necessary to increase the staff of the Forecast Division by four grade III clerks in order to provide the announcers and as soon as the staff arrangements were completed it was hoped to commence the new service.

(b) Reorganisation of Distributive Stations to meet requirements of the Royal Air Force and of Internal Air Lines.

The Director stated that the present distribution of meteorological stations was based on a policy which was approved in 1924 following an investigation into the meteorological requirements of the R.A.F. by himself and a senior Air Force officer. That policy involved the provision of distributive stations at Night Bomber Stations, Flying Boat Bases, Flying Training Schools and Experimental Stations. A request had been received recently from the Air Officer Commanding-in-Chief, Air Defence of Great Britain for a more comprehensive network of meteorological stations and a scheme was now being prepared. At the same time account was being taken of the requirements of internal civil air lines. It was too early to give full details but the scheme he had in mind involved the division of stations into groups, the headquarters station of each group being connected to the Air Ministry on one teleprinter circuit so that full synoptic data could be obtained. The subsidiary stations in each group would also be connected to the main station by teleprinter circuits so that information could be obtained at short notice. The main stations would be forecast centres but synoptic charts would also be drawn at the subsidiary stations so that the forecasts received from the main station could be amplified and explained to the R.A.F. personnel. The scheme would involve an increase of staff but here again it was not possible at present to give details. The Director thought, however, that the Committee would be interested to know of the development that was taking place.

(c) Development of Ground Organisation on Empire Air Routes.

The Director referred to the speech made by the Under-Secretary of State for Air in the House of Commons on 20th December, 1934, in which he outlined proposals for the development of Empire air communications with a view to all Empire first class postal matter being conveyed by air. This would involve a comprehensive programme for the development of the ground organisation of Empire routes including the existing meteorological service, which was provided partly by Dominion and Colonial meteorological services and partly by Meteorological Office staff attached to the Royal Air Force in Egypt, Trans-Jordan and Iraq. Proposals for meeting these new requirements were at present under consideration.

(d) Opening of new Distributive Station at Mildenhall, Suffolk.

The Director reported that a new distributive station was opened at the R.A.F. aerodrome at Mildenhall on 1st January, 1935.

(e) Opening of new Telegraphic Reporting Station at Point of Ayre, Isle of Man.

The Director reported that a new telegraphic reporting station was opened at the Point of Ayre lighthouse; reports commenced on 14th February.

(f) International Meetings.

(i) The Director reported that he would attend the meeting of the Executive Council of the International Meteorological Committee at De Bilt in May, 1935.

(ii) International Meteorological Organisation: Conference of Directors at Warsaw, September, 1935. The Committee agreed that the Director, Colonel Gold and Dr. Brooks should attend.

(iii) International Air Conference, Brussels, May 1935. The Director stated that Colonel Gold would attend this conference.

(g) Meteorological Exhibit at Highland Agricultural Show, Aberdeen, June 18th to 21st, 1935.

The Director reported that a request had been received from the Highland Agricultural Society for a meteorological exhibit at the Show to be held at Aberdeen in June and that it was proposed to arrange an exhibit as in previous years.

(h) Letter from National Central Library.

The Director referred to his report at the 148th Meeting when he outlined the scheme of the National Central Library and proposed that the M.O. Library should become an outlier library (Minute 1254). He read a letter from the Librarian of the National Central Library, dated 6th March, 1935 in which the Committee expressed their appreciation of the offer to place the books in the M.O. library at the disposal of other libraries and accepted the offer with gratitude.